

# ESC 115 Physical Geology

### Test 3

**Fall, 2014**

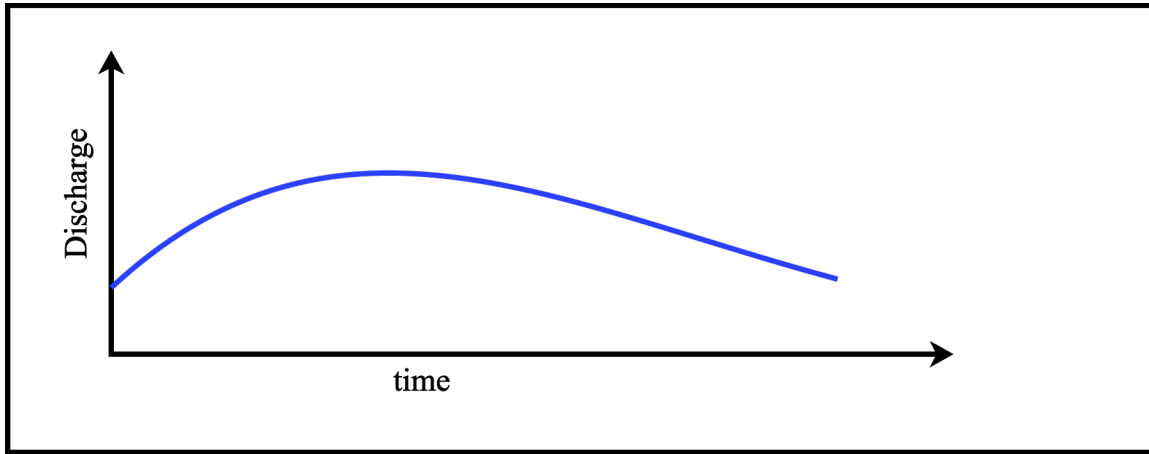
The first 13 questions refer to the slides we will view together in class. Please use the space provided to answer the questions.

1. (**7 pts**) Define risk. What are the two ways in which probabilities of hazardous events are determined? Explain. How does the figure shown relate to that probability?
2. (**6 pts**) What are three examples of cost reduction if a hazardous event occurs?
3. (**6 pts**) We discussed three ways of making decisions about reducing risk, such as in deciding whether or not to require car seats for children. Use the same three approaches for deciding whether we should require all skateboarders under 12 years of age to wear helmets and knee pads.
4. (**4 pts**) Explain the relationship between figure A and B.

5. **(3 pts)** In the figure shown, does plate A subduct under plate B or does A subduct under B? How do you know?
6. **(3 pts)** In the lower figure is shown three types of volcanic landforms. Which of the three is likely to be formed from the lava shown in the upper figure? Why?
7. **(6 pts)** Why is an estuary rich biologically? Explain.
8. **(3 pts)** Explain the process shown the leads to the longshore movement of sand.
9. **(4 pts)** What is a drainage divide? What is a drainage basin? Explain the purple area labelled *Interior Drainage*.
10. **(5 pts)** What is the stream shown? What are two conditions under which such a stream forms?
11. **(6 pts)** What were three factors contributing to the 1993 Mississippi River flood?

12. **(6 pts)** When water slows considerably, the sediment it carries is deposited, as shown in the graph, where the vertical axis is stream velocity. When the water is moving faster, what are the three ways (one not shown) that it carries sediment? Explain each.
13. **(6 pts)** What are three videos or stories that were part of this section? Explain how each relates to geology. You need to provide at least **two sentences** per example.
14. **(3 pts)** Oetzi, the *Ice Man*, was found in the Alps after being buried in the ice for 5000 years. What are three things we can learn from him?
15. **(4 pts)** Describe four ways a stream changes from headwaters to mouth in terms of discharge, velocity, sediment load, channel shape, or sediment size.
16. **(6 pts)** What are three causes of ice ages? Explain.

17. (5 pts) What is urbanization? What are three ways urbanization affects flooding? On the figure below, draw the discharge hydrograph *after* urbanization.



18. (2 pts) What is the difference between relative and absolute sea-level?
19. (3 pts) Why is an earthquake at a subduction zone likely to cause a tsunami? You may draw a picture to help you explain.
20. (3 pts) What are fissure eruptions? Why are they important worldwide?
21. (4 pts) How are tides and waves different?
22. (5 pts) What is one question you reviewed for this test that did not appear on it? Answer it.